Expert Sleepers
USAMO Plug-in
v1.0.8
User Manual

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Installation

Mac OS X, Audio Unit (AU)

The plug-in file is named "`ExSlUSAMO.component`".

Simply copy the file to the folder:

`Library/Audio/Plug-Ins/Components`

Mac OS X, VST

The plug-in file is named "`ExSlUSAMO.vst`".

Simply copy the file to the folder:

`Library/Audio/Plug-Ins/VST`

Mac OS X, AAX

The plug-in file is named "`ExSlUSAMO.aaxplugin`".

Simply copy the file to the folder:

`/Library/Application Support/Avid/Audio/Plug-Ins`

Windows (VST)

The plug-in files are named "`usamo.dll`" (32 bit version) and "`usamo_x64.dll`" (64 bit version).

Simply copy the files to your VST plug-ins folder.

Windows (AAX)

The plug-in is a folder named `usamo.aaxplugin`.

For Pro Tools 10, copy the folder to:

`C:\Program Files (x86)\Common Files\Avid\Audio\Plug-Ins`

or for Pro Tools 11 or above, copy the folder to:

`C:\Program Files\Common Files\Avid\Audio\Plug-Ins`

System Requirements

Mac OS X

The software requires at least Mac OS X version 10.6.8. The plug-in is Intel-only, and built for both 32 and 64 bit.

The Audio Unit version will work in any Audio Unit host.

The VST version requires a “VST 2.4” compatible host.[1]

The AAX version requires Pro Tools 10.3.6 (32 bit), or Pro Tools 11 or higher (64 bit).

Windows

The software has been developed and tested with Windows 7.

The plug-in requires a “VST 2.4” compatible host.

The AAX version requires Pro Tools 10.3.6 (32 bit), or Pro Tools 11 or higher (64 bit).

[1] VST is a trademark of Steinberg Media Technologies GmbH

Registration

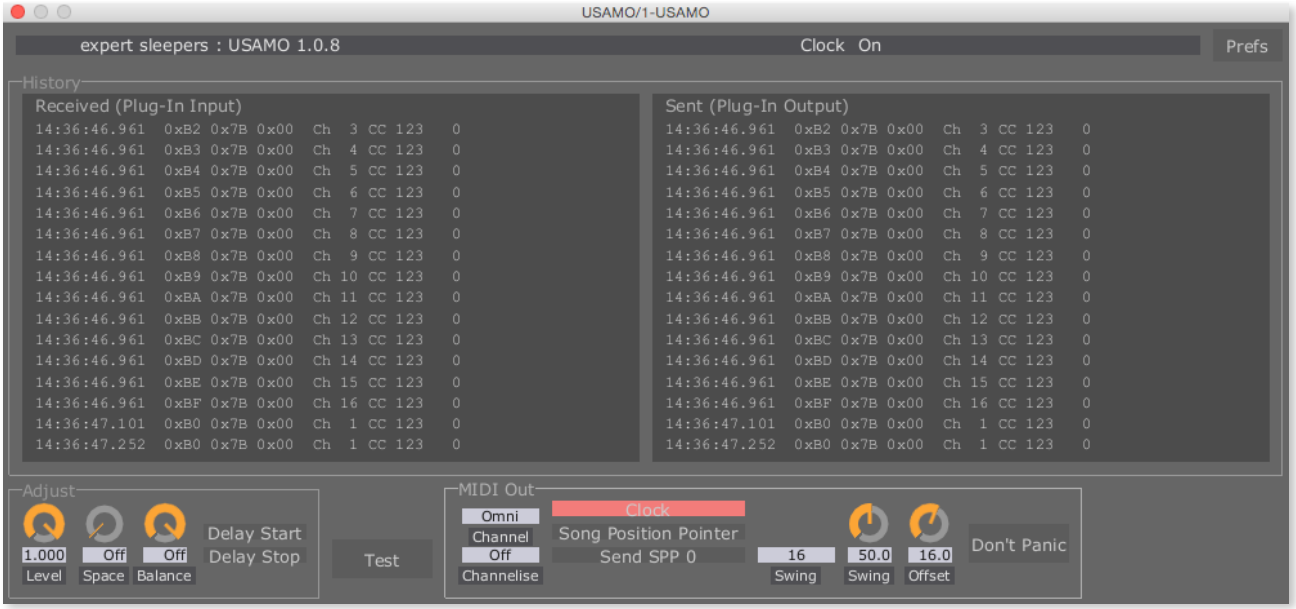
The downloadable version of the USAMO plug-in stops working after 15 minutes every time you use it. To stop this happening, you need to activate the software, using the serial number that should have been supplied to you when purchasing the USAMO hardware.

Enter the serial number into the Expert Sleepers Licence Manager application. See here for more information. Note that you need at least version 1.1.0 of the Licence Manager.

Your registration key allows you to install the USAMO plug-in on up to 3 different computers (useful if for example you have a desktop computer in the studio and a laptop for live use).

You need an internet connection to activate the software, though not necessarily on the computer on which you want to use it.

Introduction



The USAMO plug-in is the software component of the Expert Sleepers USAMO product. It is a virtual instrument plug-in (aka 'softsynth' aka 'VSTi') which translates the incoming MIDI into an audio signal which, when sent to the USAMO hardware, is decoded back into the desired MIDI messages.

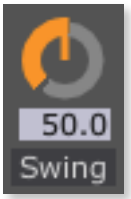
As well as simply passing on received MIDI messages, the plug-in can perform some transformations of the MIDI messages (e.g. changing the MIDI channel), and can generate MIDI clock and Song Position Pointer.

The plug-in also includes a Test section to aid in setting up the hardware correctly.

The Plug-in GUI

Using the controls

Knobs



Basic use of the knobs is to click on them and drag the mouse up and down. However you can obtain different results by holding keys as follows:

- Shift : Values change more slowly as you move the mouse.
- Command[2] (Mac OS X)/Alt (Windows) : The knob assumes its default position.
- Option[3] (Mac OS X)/Control (Windows): The knob assumes integer values only.
- Double-click: The knob returns to its default value.
- Command/Alt + double-click: The knob assumes the value zero.

Dropdown menus

Clicking on the menu displays the list of options. Move the mouse over the desired option and release the mouse to select it.

Value edit boxes

These boxes (below each knob and slider) let you enter parameter values directly. Clicking on the value highlights it in green - you can then type the desired value using the keyboard. Press enter to finish and accept the new value.

While you're typing the value, the box goes red to indicate that the value you see has not yet been accepted.

While the box is highlighted (green), using the cursor keys on your keyboard (up/down/left/right) will change the value by the smallest increment.

Name/value display

As you move the mouse around the interface, the name and current value of the control currently under the mouse is displayed in the top right of the window. This area also provides tool-tips for buttons.

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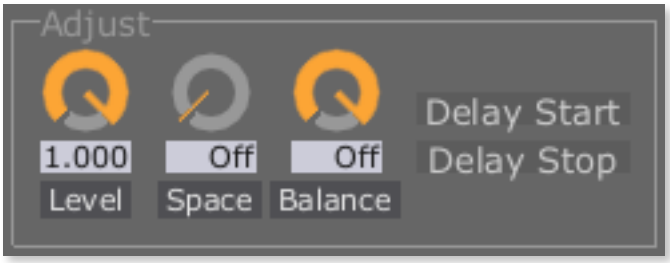
[2] The 'Command' key is also known as the 'Apple' key - the one next to the spacebar.

[3] The 'Option' (alt) key is the one between the Control (ctrl) key and the Command (cmd) key.

The Plug-in Controls

Adjust



This section contains controls which affect the generation of the audio signal from the incoming MIDI messages. These will in general be used to tune the operation for particular audio interfaces. There is a list of tested audio interfaces and recommended settings here. If your interface is not listed, contact Expert Sleepers for assistance, and please do report your findings so they can be added to the list.

Level

The Level knob simply sets the output level of the plug-in. It has exactly the same effect as adjusting the track fader in the DAW.

Space

Raising the Space knob from Off slows down the transmission of MIDI, to allow compatibility with certain audio interfaces. It is rarely necessary.

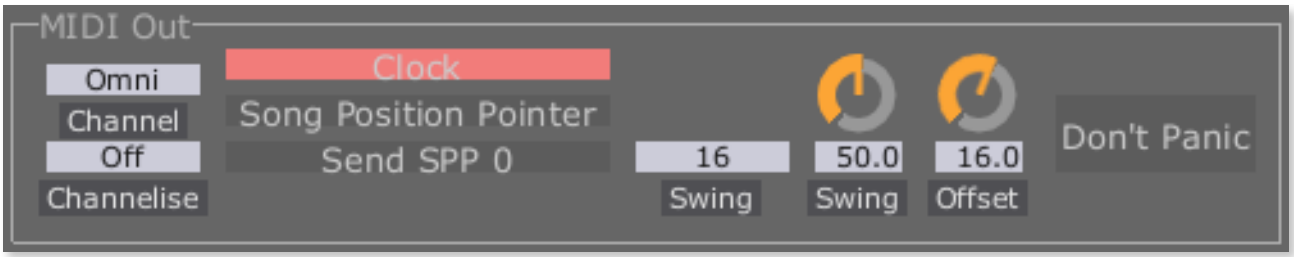
Balance

Lowering the Balance knob from Off slows down the transmission of MIDI, to allow compatibility with certain audio interfaces (but in a different way to the Space knob above). It is generally only necessary when using the USAMO to transmit MIDI Sysex messages, and even then only with certain audio interfaces.

Delay Start/Delay Stop

These buttons delay the emission of MIDI start & stop messages by one audio render slice after the host's transport has been started/stopped. They are provided primarily to work around an apparent issue with Ableton Live's External Audio Effect. Leave these off unless you have good reason to turn them on.

MIDI Out



This section controls the plug-in's response to MIDI, and the MIDI messages generated by the plug-in.

Channel

Specifies the MIDI channel to receive on. All MIDI messages from this channel are echoed out to the USAMO's output. "Off" disables this feature (but not the MIDI clock output, if enabled). "Omni" receives messages on all MIDI channels.

Channelise

If set to "Off", MIDI messages are sent out on the same channel on which they are received. If set to a channel number (1-16), the incoming MIDI messages are sent out on the specified channel.

Clock

If enabled, causes the plug-in to send MIDI timing clock messages, synced to the DAW's transport.

When Clock is enabled, MIDI clock is generated when the host DAW's transport is running. The MIDI clock generation always begins at the start of a bar; if the host transport is started in the middle of a bar, the plug-in waits for the next bar before starting the MIDI clock.

Note - do **not** also attempt to have the DAW itself send MIDI clock via the USAMO plug-in. This will result in double clocking and your external boxes will run at double speed (at best).

In Ableton Live on OS X, for example, be sure that in Live's MIDI preferences sync is turned off for the 'USAMO' virtual MIDI input.

Song Position Pointer

If enabled, the plug-in will send MIDI Song Position Pointer messages.

Send SPP 0

If 'Send SPP 0' and 'Song Position Pointer' are enabled, the plug-in will send a SPP message before a MIDI Start message as well as before a Continue message. In a strict

reading of the MIDI specification, this is not required, since Start implies the start of the song.

Swing

These controls allow you to add 'shuffle' or 'swing' timing to the clock output.

Swing has two controls. The knob sets the amount of swing, in percent. 50% means no swing (the middle sixteenth note is 50% of the way between the neighbouring notes, as normal). Higher values of swing make the middle note later; lower values make it earlier. At 100%, the middle note is right on top of the following note.

The dropdown menu chooses between sixteenth and eighth note swing.

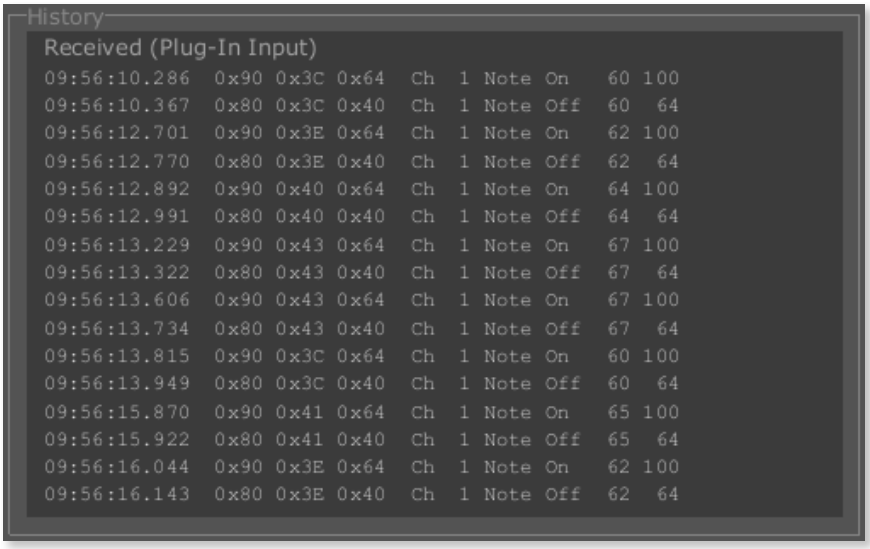
Offset

The Offset control applies a small delay or advance in the timing of the MIDI clock, relative to the host's transport. This can be used to compensate for any difference in the response time of the hardware being synced.

Don't Panic

The Don't Panic button sends a MIDI All Sound Off message on all 16 MIDI channels. This should deal with any stuck notes or other bad state if it occurs.

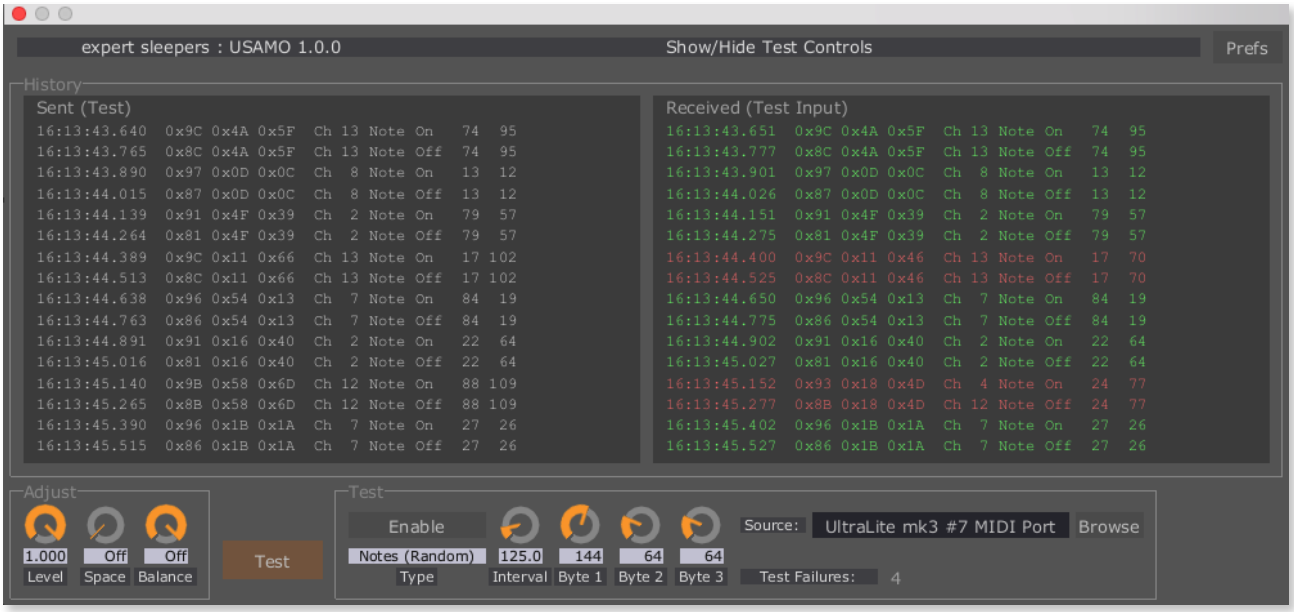
History



The History display shows the MIDI messages received by the plug-in, and as such is a useful diagnostic tool.

From left to right, the data columns are the time at which the message was received (system time, not time within the song), the first (up to) 3 bytes of the MIDI message, and then the interpretation of the message, if available. The interpretation will typically contain the MIDI channel, the message type (e.g. Note On), and the data bytes of the message (e.g. note number and velocity).

Test



The Test button switches the plug-in UI to show controls and history displays for the plug-in's test and diagnostic mode.

This mode works in conjunction with a MIDI input port on your computer. The MIDI output of the USAMO hardware needs to be plugged into this MIDI input. The plug-in sends a known sequence of MIDI messages, and listens to what it gets back. If there are any discrepancies, the plug-in or hardware settings can be adjusted until the errors cease.

Selecting the MIDI input

The text box labelled 'Source' selects the MIDI port to listen on. It is usually easier to use the 'Browse' button next to it, which brings up a dialog listing the available MIDI input ports on your system. Select the port to which you connected the MIDI cable from the USAMO.

Enable

The Enable button starts the sending of test messages. It also resets the 'Test Failures' count to zero.

Type

The Type menu selects the type of test messages to send. The options are:

- Notes (Random) - sends note on/off messages with randomised channel, note number and velocity.
- Notes (Exhaustive) - sends all possible note on/off messages, iterating though all channels, note numbers and velocities in turn.
- Clocks - sends MIDI clock messages (including start/stop/continue)
- Clocks + SPP - sends MIDI clock messages, and Song Position Pointer messages before each continue message.
- Message - sends a fixed MIDI message, using the values from the three Byte knobs.
- Sysex - sends a MIDI System Exclusive dump. The 'Byte 3' knob sets the size of the dump in kilobytes.

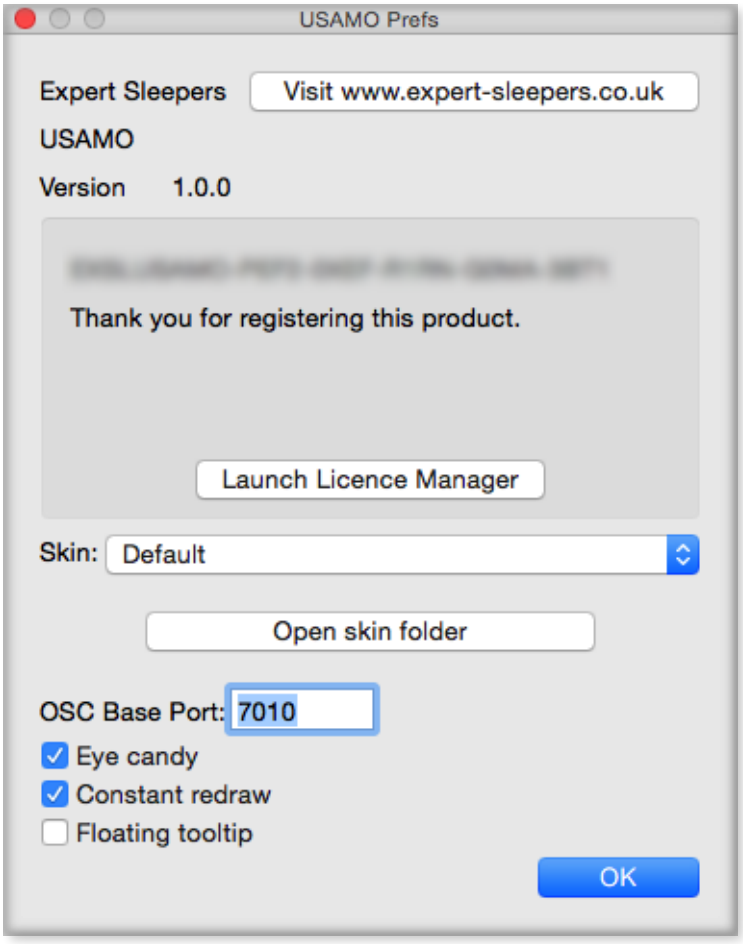
Interval

The Interval knob sets the time (in milliseconds) between test messages.

History

There are two history displays in test mode - "Sent (Test)" and "Received (Test Input)". They show the test messages sent, and the messages received on the test MIDI input port. The received messages are coloured green if they match the sent message, or red if they do not.

Preferences



Pressing the 'Prefs' button brings up a dialog where various preferences are set. These settings are shared by all instances of the USAMO plug-in, and are not stored with presets.

The top section shows the product version. The central section will show your serial number once you've bought a registration.

Skin

Allows you to choose a skin for the plug-in GUI. See below.

OSC Base Port

Sets the base port number for OSC.

Eye candy

Enables the pretty graphics. Turn off if you don't like them, or if your computer has compatibility issues with drawing such things.

Constant redraw

Is on by default. If turned off, the GUI is only redrawn when a control changes. Use this if you're concerned that the GUI is wasting your CPU resources.

Floating tooltip

Causes the parameter name and value display (usually in the top right of the GUI) to be displayed above the mouse pointer.

Version History

1.0.8 4th November 2015

- Fixed UI behaviour in multiple monitor setups with a mix of Retina and non-Retina displays.
- Fixed the rendering of the message history windows on Retina displays.
- Added the 'Delay Start/Stop' buttons.

1.0.7 30th July 2015

- Fixed a bug in the generation of MIDI clock at certain tempos.
- Fixed the behaviour of the Offset control in certain situations.

1.0.0 2nd March 2015

- First release.

Contact

The Expert Sleepers website is here:

http://www.expert-sleepers.co.uk/

Or you can email

info@expertsleepers.co.uk

Or you can use one of the Expert Sleepers forums, which are here:

http://www.kvraudio.com/forum/viewforum.php?f=85

and here:

http://www.muffwiggler.com/forum/viewforum.php?f=35

Acknowledgements

The software described in this manual makes use of the following open source projects. The author is greatly indebted to them for their efforts and generosity.

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Lua

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oscpack

oscpack -- Open Sound Control packet manipulation library
http://www.audiomulch.com/~rossb/code/oscpack

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glew

The OpenGL Extension Wrangler Library
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Mesa 3-D graphics library

Version: 7.0

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FTGL

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zlib

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